



SEQUENCE LISTING

<110> ITOH, YASUAKI
MOGI, SHINICHI
TANAKA, HIDEYUKI
OHKUBO, SHOICHI
OGI, KAZUHIRO

<120> NOVEL POLYPEPTIDE

<130> 46342/56686

<140> 09/979,546

<141> 2001-11-20

<150> PCT/JP00/03221

<151> 2000-05-19

<150> JP 11-140229

<151> 1999-05-20

<160> 71

<170> PatentIn Ver. 2.1

<210> 1

<211> 125

<212> PRT

<213> Homo sapiens

<400> 1

Met Ala Lys Tyr Leu Ala Gln Ile Ile Val Met Gly Val Gln Val Val
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Gly Arg Ala Phe Ala Arg Ala Leu Arg Gln Glu Phe Ala Ala Ser Arg
20 25 30

Ala Ala Ala Asp Ala Arg Gly Arg Ala Gly His Arg Ser Ala Ala Ala
35 40 45

Ser Asn Leu Ser Gly Leu Ser Leu Gln Glu Ala Gln Gln Ile Leu Asn
50 55 60

Val Ser Lys Leu Ser Pro Glu Glu Val Gln Lys Asn Tyr Glu His Leu
65 70 75 80

Phe Lys Val Asn Asp Lys Ser Val Gly Gly Ser Phe Tyr Leu Gln Ser
85 90 95

Lys Val Val Arg Ala Lys Glu Arg Leu Asp Glu Glu Leu Lys Ile Gln
100 105 110

Ala Gln Glu Asp Arg Glu Lys Gly Gln Met Pro His Thr
115 120 125

<210> 2
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 Met His Arg Ser Glu Pro Phe Leu Lys Met Ser Leu Leu Ile Leu Leu
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 Phe Leu Gly Leu Ala Glu Ala Cys Thr Pro Arg Glu Val Asn Leu Leu
 20 25 30
 Lys Gly Ile Ile Gly Leu Met Ser Arg Leu Ser Pro Asp Glu Ile Leu
 35 40 45
 Gly Leu Leu Ser Leu Gln Val Leu His Glu Glu Thr Ser Gly Cys Lys
 50 55 60
 Glu Glu Val Lys Pro Phe Ser Gly Thr Thr Pro Ser Arg Lys Pro Leu
 65 70 75 80
 Pro Lys Arg Lys Asn Thr Trp Asn Phe Leu Lys Cys Ala Tyr Met Val
 85 90 95
 Met Thr Tyr Leu Phe Val Ser Tyr Asn Lys Gly Asp Trp Phe Thr Phe
 100 105 110
 Ser Ser Gln Val Leu Leu Pro Leu Leu
 115 120

<210> 3
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 20 25 30
 Phe His Phe Gln Thr Gly Gly Arg Asp Ser Cys Thr Met Arg Pro Ser
 35 40 45
 Ser Leu Gly Gln Gly Ala Gly Glu Val Trp Leu Arg Val Asp Cys Arg
 50 55 60
 Asn Thr Asp Gln Thr Tyr Trp Cys Glu Tyr Arg Gly Gln Pro Ser Met
 65 70 75 80
 Cys Gln Ala Phe Ala Ala Asp Pro Lys Ser Tyr Trp Asn Gln Ala Leu
 85 90 95
 Gln Glu Leu Arg Arg Leu His His Ala Cys Gln Gly Ala Pro Val Leu

100					105					110						
Arg	Pro	Ser	Val	Cys	Arg	Glu	Ala	Gly	Pro	Gln	Ala	His	Met	Gln	Gln	
115					120					125						
Val	Thr	Ser	Ser	Leu	Lys	Gly	Ser	Pro	Glu	Pro	Asn	Gln	Gln	Pro	Glu	
130					135					140						
Ala	Gly	Thr	Pro	Ser	Leu	Ser	Pro	Lys	Ala	Thr	Val	Lys	Leu	Thr	Gly	
145					150					155					160	
Ala	Thr	Gln	Leu	Gly	Lys	Asp	Ser	Met	Glu	Glu	Leu	Gly	Lys	Ala	Lys	
165					170					175						
Pro	Thr	Thr	Gly	Pro	Thr	Ala	Lys	Pro	Thr	Gln	Pro	Gly	Pro	Arg	Pro	
180					185					190						
Gly	Gly	Asn	Glu	Glu	Ala	Lys	Lys	Lys	Ala	Trp	Glu	His	Cys	Trp	Lys	
195					200					205						
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210					215					220						

<210> 4

<211> 248

<212> PRT

<213> Homo sapiens

<400> 4

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20					25					30						
Arg	Leu	Pro	Ser	Lys	Cys	Glu	Val	Cys	Lys	Leu	Leu	Ser	Thr	Glu	Leu	
35					40					45						
Gln	Ala	Glu	Leu	Ser	Arg	Thr	Gly	Arg	Ser	Arg	Glu	Val	Leu	Glu	Leu	
50					55					60						
Gly	Gln	Val	Leu	Asp	Thr	Gly	Lys	Arg	Lys	Arg	His	Val	Pro	Tyr	Ser	
65					70					75					80	
Val	Ser	Glu	Thr	Arg	Leu	Glu	Glu	Ala	Leu	Glu	Asn	Leu	Cys	Glu	Arg	
85					90					95						
Ile	Leu	Asp	Tyr	Ser	Val	His	Ala	Glu	Arg	Lys	Gly	Ser	Leu	Arg	Tyr	
100					105					110						
Ala	Lys	Gly	Gln	Ser	Gln	Thr	Met	Ala	Thr	Leu	Lys	Gly	Leu	Val	Gln	
115					120					125						
Lys	Gly	Val	Lys	Val	Asp	Leu	Gly	Ile	Pro	Leu	Glu	Leu	Trp	Asp	Glu	
130					135					140						

Pro Ser Val Glu Val Thr Tyr Leu Lys Lys Gln Cys Glu Thr Met Leu
 145 150 155 160

Glu Glu Phe Glu Asp Ile Val Gly Asp Trp Tyr Phe His His Gln Glu
 165 170 175

Gln Pro Leu Gln Asn Phe Leu Cys Glu Gly His Val Leu Pro Ala Ala
 180 185 190

Glu Thr Ala Cys Leu Gln Glu Thr Trp Thr Gly Lys Glu Ile Thr Asp
 195 200 205

Gly Glu Glu Lys Thr Glu Gly Glu Glu Glu Gln Glu Glu Glu Glu
 210 215 220

Glu Glu Glu Glu Glu Gly Gly Asp Lys Met Thr Lys Thr Gly Ser His
 225 230 235 240

Pro Lys Leu Asp Arg Glu Asp Leu
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 <213> Homo sapiens

<400> 5
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Ser Leu Gly Leu Asn Asp Leu Asn Val Ser Pro Pro Glu Leu Thr Val
 20 25 30

His Val Gly Asp Ser Ala Leu Met Gly Cys Val Phe Gln Ser Thr Glu
 35 40 45

Asp Lys Cys Ile Phe Lys Ile Asp Trp Thr Leu Ser Pro Gly Glu His
 50 55 60

Ala Lys Asp Glu Tyr Val Leu Tyr Tyr Tyr Ser Asn Leu Ser Val Pro
 65 70 75 80

Ile Gly Arg Phe Gln Asn Arg Val His Leu Met Gly Asp Ile Leu Cys
 85 90 95

Asn Asp Gly Ser Leu Leu Leu Gln Asp Val Gln Glu Ala Asp Gln Gly
 100 105 110

Thr Tyr Ile Cys Glu Ile Arg Leu Lys Gly Glu Ser Gln Val Phe Lys
 115 120 125

Lys Ala Val Val Leu His Val Leu Pro Glu Glu Pro Lys Glu Leu Met
 130 135 140

Val His Val Gly Gly Leu Ile Gln Met Gly Cys Val Phe Gln Ser Thr
 145 150 155 160

Glu Val Lys His Val Thr Lys Val Glu Trp Ile Phe Ser
 165 170

<210> 6

<211> 261

<212> PRT

<213> Homo sapiens

<400> 6

Met Glu Leu Leu Gln Val Thr Ile Leu Phe Leu Leu Pro Ser Ile Cys
 1 5 10 15

Ser Ser Asn Ser Thr Gly Val Leu Glu Ala Ala Asn Asn Ser Leu Val
 20 25 30

Val Thr Thr Thr Lys Pro Ser Ile Thr Thr Pro Asn Thr Glu Ser Leu
 35 40 45

Gln Lys Asn Val Val Thr Pro Thr Thr Gly Thr Thr Pro Lys Gly Thr
 50 55 60

Ile Thr Asn Glu Leu Leu Lys Met Ser Leu Met Ser Thr Ala Thr Phe
 65 70 75 80

Leu Thr Ser Lys Asp Glu Gly Leu Lys Ala Thr Thr Thr Asp Val Arg
 85 90 95

Lys Asn Asp Ser Ile Ile Ser Asn Val Thr Val Thr Ser Val Thr Leu
 100 105 110

Pro Asn Ala Val Ser Thr Leu Gln Ser Ser Lys Pro Lys Thr Glu Thr
 115 120 125

Gln Ser Ser Ile Lys Thr Thr Glu Ile Pro Gly Ser Val Leu Gln Pro
 130 135 140

Asp Ala Ser Pro Ser Lys Thr Gly Thr Leu Thr Ser Ile Pro Val Thr
 145 150 155 160

Ile Pro Glu Asn Thr Ser Gln Ser Gln Val Ile Gly Thr Glu Gly Gly
 165 170 175

Lys Asn Ala Ser Thr Ser Ala Thr Ser Arg Ser Tyr Ser Ser Ile Ile
 180 185 190

Leu Pro Val Val Ile Ala Leu Ile Val Ile Thr Leu Ser Val Phe Val
 195 200 205

Leu Val Gly Leu Tyr Arg Met Cys Trp Lys Ala Asp Pro Gly Thr Pro
 210 215 220

Glu Asn Gly Asn Asp Gln Pro Gln Ser Asp Lys Glu Ser Val Lys Leu
 225 230 235 240

Leu Thr Val Lys Thr Ile Ser His Glu Ser Gly Glu His Ser Ala Gln

245

250

255

Gly Lys Thr Lys Asn
260

<210> 7

<211> 243

<212> PRT

<213> Homo sapiens

<400> 7

Met Arg Pro Gln Gly Pro Ala Ala Ser Pro Gln Arg Leu Arg Gly Leu
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Leu Leu Leu Leu Leu Leu Gln Leu Pro Ala Pro Ser Ser Ala Ser Glu
20 25 30

Ile Pro Lys Gly Lys Gln Lys Ala Gln Leu Arg Gln Arg Glu Val Val
35 40 45

Asp Leu Tyr Asn Gly Met Cys Leu Gln Gly Pro Ala Gly Val Pro-Gly
50 55 60

Arg Asp Gly Ser Pro Gly Ala Asn Gly Ile Pro Gly Thr Pro Gly Ile
65 70 75 80

Pro Gly Arg Asp Gly Phe Lys Gly Glu Lys Gly Glu Cys Leu Arg Glu
85 90 95

Ser Phe Glu Glu Ser Trp Thr Pro Asn Tyr Lys Gln Cys Ser Trp Ser
100 105 110

Ser Leu Asn Tyr Gly Ile Asp Leu Gly Lys Ile Ala Glu Cys Thr Phe
115 120 125

Thr Lys Met Arg Ser Asn Ser Ala Leu Arg Val Leu Phe Ser Gly Ser
130 135 140

Leu Arg Leu Lys Cys Arg Asn Ala Cys Cys Gln Arg Trp Tyr Phe Thr
145 150 155 160

Phe Asn Gly Ala Glu Cys Ser Gly Pro Leu Pro Ile Glu Ala Ile Ile
165 170 175

Tyr Leu Asp Gln Gly Ser Pro Glu Met Asn Ser Thr Ile Asn Ile His
180 185 190

Arg Thr Ser Ser Val Glu Gly Leu Cys Glu Gly Ile Gly Ala Gly Leu
195 200 205

Val Asp Val Ala Ile Trp Val Gly Thr Cys Ser Asp Tyr Pro Lys Gly
210 215 220

Asp Ala Ser Thr Gly Trp Asn Ser Val Ser Arg Ile Ile Ile Glu Glu
225 230 235 240

Leu Pro Lys

<210> 8

<211> 149

<212> PRT

<213> Homo sapiens

<400> 8

Met Lys Leu Gln Cys Val Ser Leu Trp Leu Leu Gly Thr Ile Leu Ile
1 5 10 15

Leu Cys Ser Val Asp Asn His Gly Leu Arg Arg Cys Leu Ile Ser Thr
20 25 30

Asp Met His His Ile Glu Glu Ser Phe Gln Glu Ile Lys Arg Ala Ile
35 40 45

Gln Ala Lys Asp Thr Phe Pro Asn Val Thr Ile Leu Ser Thr Leu Glu
50 55 60

Thr Leu Gln Ile Ile Lys Pro Leu Asp Val Cys Cys Val Thr Lys Asn
65 70 75 80

Leu Leu Ala Phe Tyr Val Asp Arg Val Phe Lys Asp His Gln Glu Pro
85 90 95

Asn Pro Lys Ile Leu Arg Lys Ile Ile Ser Ile Cys Gln Leu Phe Pro
100 105 110

Leu His Ala Glu Asn Ser Ala Ala Met Cys Glu Ser Leu Gly Gln Asn
115 120 125

Ser Ser Ile Cys Ser Leu Ser Ala Gln Gly Glu Ala Arg Lys Cys Trp
130 135 140

Pro Pro Ser Ala Ser
145

<210> 9

<211> 136

<212> PRT

<213> Homo sapiens

<400> 9

Met Ala Ser Leu Gly Leu Leu Leu Leu Leu Leu Thr Ala Leu Pro
1 5 10 15

Pro Leu Trp Ser Ser Ser Leu Pro Gly Leu Asp Thr Ala Glu Ser Lys
20 25 30

Ala Thr Ile Ala Asp Leu Ile Leu Ser Ala Leu Glu Arg Ala Thr Val
35 40 45

Phe Leu Glu Gln Arg Leu Pro Glu Ile Asn Leu Asp Gly Met Val Gly

50

55

60

Val Arg Val Leu Glu Glu Gln Leu Lys Ser Val Arg Glu Lys Trp Ala
 65 70 75 80

Gln Glu Pro Leu Leu Gln Pro Leu Ser Leu Arg Val Gly Met Leu Gly
 85 90 95

Glu Lys Leu Glu Ala Ala Ile Gln Arg Ser Leu His Tyr Leu Lys Leu
 100 105 110

Ser Asp Pro Lys Tyr Leu Arg Gly Arg Thr Ala Ala Ser Pro Ala Ala
 115 120 125

Ser Gln Thr Ser Ala Gly Ala Ser
 130 135

<210> 10
 <211> 123
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 <213> Homo sapiens

<400> 10
 Met Lys Leu Leu Leu Leu Ala Leu Pro Met Leu Val Leu Leu Pro Gln
 1 5 10 15

Val Ile Pro Ala Tyr Ser Gly Glu Lys Lys Cys Trp Asn Arg Ser Gly
 20 25 30

His Cys Arg Lys Gln Cys Lys Asp Gly Glu Ala Val Lys Asp Thr Cys
 35 40 45

Lys Asn Leu Arg Ala Cys Cys Ile Pro Ser Asn Glu Asp His Arg Arg
 50 55 60

Val Pro Ala Thr Ser Pro Thr Pro Leu Ser Asp Ser Thr Pro Gly Ile
 65 70 75 80

Ile Asp Asp Ile Leu Thr Val Arg Phe Thr Thr Asp Tyr Phe Glu Val
 85 90 95

Ser Ser Lys Lys Asp Met Val Glu Glu Ser Glu Ala Gly Arg Gly Thr
 100 105 110

Glu Thr Ser Leu Pro Asn Val His His Ser Ser
 115 120

<210> 11
 <211> 163
 <212> PRT
 <213> Homo sapiens

<400> 11
 Met Gly Gly Leu Leu Leu Ala Ala Phe Leu Ala Leu Val Ser Val Pro
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Arg Ala Gln Ala Val Trp Leu Gly Arg Leu Asp Pro Glu Gln Leu Leu
 20 25 30
 Gly Pro Trp Tyr Val Leu Ala Val Ala Ser Arg Glu Lys Gly Phe Ala
 35 40 45
 Met Glu Lys Asp Met Lys Asn Val Val Gly Val Val Val Thr Leu Thr
 50 55 60
 Pro Glu Asn Asn Leu Arg Thr Leu Ser Ser Gln His Gly Leu Gly Gly
 65 70 75 80
 Cys Asp Gln Ser Val Met Asp Leu Ile Lys Arg Asn Ser Gly Trp Val
 85 90 95
 Phe Glu Asn Pro Ser Ile Gly Val Leu Glu Leu Trp Val Leu Ala Thr
 100 105 110
 Asn Phe Arg Asp Tyr Ala Ile Ile Phe Thr Gln Leu Glu Phe Gly Asp
 115 120 125
 Glu Pro Phe Asn Thr Val Glu Leu Tyr Ser Leu Thr Glu Thr Ala Ser
 130 135 140
 Gln Glu Ala Met Gly Leu Phe Thr Lys Trp Ser Arg Ser Leu Gly Phe
 145 150 155 160
 Leu Ser Gln

<210> 12
 <211> 301
 <212> PRT
 <213> Homo sapiens

<400> 12
 Met Ala Arg His Gly Leu Pro Leu Leu Pro Leu Leu Ser Leu Leu Val
 1 5 10 15
 Gly Ala Trp Leu Lys Leu Gly Asn Gly Gln Ala Thr Ser Met Val Gln
 20 25 30
 Leu Gln Gly Gly Arg Phe Leu Met Gly Thr Asn Ser Pro Asp Ser Arg
 35 40 45
 Asp Gly Glu Gly Pro Val Arg Glu Ala Thr Val Lys Pro Phe Ala Ile
 50 55 60
 Asp Ile Phe Pro Val Thr Asn Lys Asp Phe Arg Asp Phe Val Arg Glu
 65 70 75 80
 Lys Lys Tyr Arg Thr Glu Ala Glu Met Phe Gly Trp Ser Phe Val Phe
 85 90 95
 Glu Asp Phe Val Ser Asp Glu Leu Arg Asn Lys Ala Thr Gln Pro Met

100					105					110						
Lys	Ser	Val	Leu	Trp	Trp	Leu	Pro	Val	Glu	Lys	Ala	Phe	Trp	Arg	Gln	
115					120					125						
Pro	Ala	Gly	Pro	Gly	Ser	Gly	Ile	Arg	Glu	Arg	Leu	Glu	His	Pro	Val	
130					135					140						
Leu	His	Val	Ser	Trp	Asn	Asp	Ala	Arg	Ala	Tyr	Cys	Ala	Trp	Arg	Gly	
145					150					155					160	
Lys	Arg	Leu	Pro	Thr	Glu	Glu	Glu	Trp	Glu	Phe	Ala	Ala	Arg	Gly	Gly	
165					170					175						
Leu	Lys	Gly	Gln	Val	Tyr	Pro	Trp	Gly	Asn	Trp	Phe	Gln	Pro	Asn	Arg	
180					185					190						
Thr	Asn	Leu	Trp	Gln	Gly	Lys	Phe	Pro	Lys	Gly	Asp	Lys	Ala	Glu	Asp	
195					200					205						
Gly	Phe	His	Gly	Val	Ser	Pro	Val	Asn	Ala	Phe	Pro	Ala	Gln	Asn	Asn	
210					215					220						
Tyr	Gly	Leu	Tyr	Asp	Leu	Leu	Gly	Asn	Val	Trp	Glu	Trp	Thr	Ala	Ser	
225					230					235					240	
Pro	Tyr	Gln	Ala	Ala	Glu	Gln	Asp	Met	Arg	Val	Leu	Arg	Gly	Ala	Ser	
245					250					255						
Trp	Ile	Asp	Thr	Ala	Asp	Gly	Ser	Ala	Asn	His	Arg	Ala	Arg	Val	Thr	
260					265					270						
Thr	Arg	Met	Gly	Asn	Thr	Pro	Asp	Ser	Ala	Ser	Asp	Asn	Leu	Gly	Phe	
275					280					285						
Arg	Cys	Ala	Ala	Asp	Ala	Gly	Arg	Pro	Pro	Gly	Glu	Leu				
290					295					300						

<210> 13

<211> 69

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<213> Homo sapiens

<400> 13

Met	Cys	Trp	Leu	Arg	Ala	Trp	Gly	Gln	Ile	Leu	Leu	Pro	Val	Phe	Leu
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Ser	Leu	Phe	Leu	Ile	Gln	Leu	Leu	Ile	Ser	Phe	Ser	Glu	Asn	Gly	Phe
			20					25					30		

Ile	His	Ser	Pro	Arg	Asn	Asn	Gln	Lys	Pro	Arg	Asp	Gly	Asn	Glu	Glu
			35				40					45			

Glu	Cys	Ala	Val	Lys	Lys	Ser	Cys	Gln	Leu	Cys	Thr	Glu	Asp	Lys	Lys
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Tyr Met Met Asn Arg
65

<210> 14
<211> 69
<212> PRT
<213> Homo sapiens

<400> 14
Met Gly Phe Pro Ala Ala Ala Leu Leu Cys Ala Leu Cys Cys Gly Leu
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20 25 30
Arg Gly Arg Pro Arg Arg Thr Arg Thr Ser Ala Ala Ala Trp Pro Pro
35 40 45
Ser Ala Leu Ser Cys Ala Arg Thr Gly Ala Pro Ser Cys Pro Arg Arg
50 55 60
Pro Thr Val Ser Ala
65

<210> 15
<211> 197
<212> PRT
<213> Homo sapiens

<400> 15
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1 5 10 15
Leu Cys Gly Ser Ile Thr Leu Ala Leu Gly Asn Ala Gln Lys Leu Pro
20 25 30
Lys Gly Lys Arg Pro Asn Leu Lys Val His Ile Asn Thr Thr Ser Asp
35 40 45
Ser Ile Leu Leu Lys Phe Leu Arg Pro Ser Pro Asn Val Lys Leu Glu
50 55 60
Gly Leu Leu Leu Gly Tyr Gly Ser Asn Val Ser Pro Asn Gln Tyr Phe
65 70 75 80
Pro Leu Pro Ala Glu Gly Lys Phe Thr Glu Ala Ile Val Asp Ala Glu
85 90 95
Pro Lys Tyr Leu Ile Val Val Arg Pro Ala Pro Pro Pro Ser Gln Lys
100 105 110
Lys Ser Cys Ser Gly Lys Thr Arg Ser Arg Lys Pro Leu Gln Leu Val
115 120 125
Val Gly Thr Leu Thr Pro Ser Ser Val Phe Leu Ser Trp Gly Phe Leu

130

135

140

Ile Asn Pro His His Asp Trp Thr Leu Pro Ser His Cys Pro Asn Asp
 145 150 155 160

Arg Phe Tyr Thr Ile Arg Tyr Arg Glu Lys Asp Lys Glu Lys Lys Trp
 165 170 175

Ile Phe Gln Ile Cys Pro Ala Thr Glu Thr Ile Val Glu Asn Leu Lys
 180 185 190

Pro Asn Thr Ser Leu
 195

<210> 16

<211> 378

<212> DNA

<213> Homo sapiens

<400> 16

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<210> 17

<211> 366

<212> DNA

<213> Homo sapiens

<400> 17

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 agtggctgca aggaggaagt taaacccttc tcaggcacca ccccatccag gaaaccactc 240
 cccaagagga agaacacgtg gaacttctcg aaatgcgcct acatggtgat gacctacctc 300
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 ctgtaa 366

<210> 18

<211> 672

<212> DNA

<213> Homo sapiens

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 cgccctcacc atgcgtgccg gggggccccc gtgcttaggc catccgtgtg caggaggagct 360

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gcaacacagc tgggaaagga ctcgatggaa gagctgggaa aagccaaacc caccaccgga 540
cccacagcca aacctaccca gcctggaccc agggccggag ggaatgagga agcaaagaag 600
aaggcctggg aacattgttg gaaacccttc caggccctgt gcgcctttct catcagcttc 660
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<210> 19

<211> 747

<212> DNA

<213> Homo sapiens

<400> 19

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tgtaagctgc tgagcacaga gctacaggcg gaactgagtc gcaccggtcg atctcgagag 180
gtgctggagc tggggcaggt gctggatata ggcaagagga agagacacgt gccttacagc 240
gtttcagaga caaggctgga agaggcctta gagaatttat gtgagcggat cctggactat 300
agtgttcacg ctgagcgcaa gggctcactg agatatgcca agggtcagag tcagaccatg 360
gcaacactga aaggcctagt gcagaagggg gtgaagggtg atctggggat ccctctggag 420
ctttgggatg agcccagcgt ggaggtcaca tacctcaaga agcagtgtga gaccatgttg 480
gaggagtgtt aagacattgt gggagactgg tacttccacc atcaggagca gcccctacaa 540
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tggactggaa aggagatcac agatggggaa gagaaaacag aaggggagga agagcaggag 660
gaggaggagg aagaggagga agaggaaggg ggagacaaga tgaccaagac aggaagccac 720
cccaaaactg accgagaaga tctttga 747

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<210> 20

<211> 522

<212> DNA

<213> Homo sapiens

<400> 20

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ggatgtgttt tccagagcac agaagacaaa tgtatattca agatagactg gactctgtca 180
ccaggagagc acgccaagga cgaatatgtg ctatactatt actccaatct cagtgtgcct 240
attgggcgct tccagaaccg cgtacacttg atgggggaca tcttatgcaa tgatggctct 300
ctcctgctcc aagatgtgca agaggctgac cagggaacct atatctgtga aatccgcctc 360
aaaggggaga gccagggtgt caagaaggcg gtggactgac atgtgcttcc agaggagccc 420
aaagagctca tgggtccatgt ggggtggattg attcagatgg gatgtgtttt ccagagcaca 480
gaagtgaaac acgtgaccaa ggtagaatgg atattttcat ga 522

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<210> 21

<211> 786

<212> DNA

<213> Homo sapiens

<400> 21

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acagggtgtt tagaggcagc taataattca cttgttgtta ctacaacaaa accatctata 120
acaacaccaa acacagaatc attacagaaa aatgttgtca caccaacaac tggaacaact 180
cctaaaggaa caatcaccaa tgaattactt aaaatgtctc tgatgtcaac agctactttt 240
ttaacaagta aagatgaagg attgaaagcc acaaccactg atgtcaggaa gaatgactcc 300

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gtttctacaac cagatgcac accttctaaa actggtacat taacctcaat accagttaca 480
attccagaaa acacctcaca gtctcaagta ataggcactg aggggtggaaa aaatgcaagc 540
acttcagcaa ccagccgggtc ttattccagt attattttgc cgggtggttat tgctttgatt 600
gtaataacac tttcagtatt tgttctgggtg gggttggtacc gaatgtgctg gaaggcagat 660
ccgggcacac cagaaaatgg aaatgatcaa cctcagtcctg ataaagagag cgtgaagctt 720
cttaccgtta agacaatttc tcatgagtct ggtgagcact ctgcacaagg aaaaaccaag 780
aactga

```

<210> 22

<211> 732

<212> DNA

<213> Homo sapiens

<400> 22

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atgcgacccc agggccccgc cgcctccccg cagcggctcc gcggcctcct gctgctcctg 60
ctgctgcagc tgccccgcgc gtcgagcgcc tctgagatcc ccaaggggaa gcaaaaggcg 120
cagctccggc agagggagggt ggtggacctg tataatggaa tgtgcttaca agggccagca 180
ggagtgcctg gtcgagacgg gagccctggg gccaatggca ttccgggtac acctgggatc 240
ccaggtcggg atggattcaa aggagaaaag ggggaatgtc tgagggaaag ctttgaggag 300
tcctggacac ccaactacaa gcagtgttca tggagtcat tgaattatgg catagatctt 360
gggaaaattg cggagtgtac atttacaag atgcgttcaa atagtgtctt aagagttttg 420
ttcagtggct cacttcggct aaaatgcaga aatgcagtct gtcagcgttg gtatttcaca 480
ttcaatggag ctgaatgttc aggacctctt cccattgaag ctataattta tttggacca 540
ggaagccctg aaatgaattc aacaattaat attcatcgca cttcttctgt ggaaggactt 600
tgtgaaggaa ttggtgctgg attagtggat gttgctatct gggttggcac ttgttcagat 660
tacccaaaaag gagatgcttc tactggatgg aattcagttt ctcgcatcat tattgaagaa 720
ctaccaaaat aa

```

732

<210> 23

<211> 450

<212> DNA

<213> Homo sapiens

<400> 23

```

atgaagttac agtgtgtttc cctttggctc ctgggtacaa tactgatatt gtgctcagta 60
gacaaccacg gtctcaggag atgtctgatt tccacagaca tgcaccatat agaagagagt 120
ttccaagaaa tcaaaagagc catccaagct aaggacacct tccaaatgt cactatcctg 180
tccacattgg agactctgca gatcattaag cccttagatg tgtgctgctg gaccaagaac 240
ctcctggcgt tctacgtgga cagggtgttc aaggatcatc aggagccaaa ccccaaatc 300
ttgagaaaaa tcatcagcat ttgccaaactc ttctctctac atgcagaaaa ctctgcggca 360
atgtgtgagt cactgggtca gaattccagc atctgctccc tgtctgcccc aggagaggcc 420
aggaagtgtc ggcccccatc ggctcctga

```

450

<210> 24

<211> 411

<212> DNA

<213> Homo sapiens

<400> 24

```

atggccagcc tggggctgct gtcctgctc ttactgacag cactgccacc gctgtggtcc 60
tcctcactgc ctgggctgga cactgctgaa agtaaagcca ccattgcaga cctgatcctg 120
tctgcgctgg agagagccac cgtcttccta gaacagaggc tgcctgaaat caacctggat 180

```

```

ggcatggtgg ggggtccgagt gctggaagag cagctaaaaa gtgtccggga gaagtgggcc 240
caggagcccc tgctgcagcc gctgagcctg cgcgtgggga tgctggggga gaagctggag 300
gctgccatcc agagatccct ccactacctc aagctgagtg atcccaagta cctaagagga 360
cggacagcag cgagccctgc ggctctcag acctctgcag ggcctcatg a 411

```

```

<210> 25
<211> 372
<212> DNA
<213> Homo sapiens

```

```

<400> 25
atgaaactcc tgctgctggc tcttcctatg cttgtgctcc taccccaagt gatcccagcc 60
tatagtggtg aaaaaaatg ctggaacaga tcagggcact gcaggaaaca atgcaaagat 120
ggagaagcag tgaaaagatac atgcaaaaat cttcgagctt gctgcattcc atccaatgaa 180
gaccacagcc gagttcctgc gacatctccc acacccttga gtgactcaac accaggaatt 240
attgatgata ttttaacagt aagggttcacg acagactact ttgaagtaag cagcaagaaa 300
gatatggttg aagagtctga ggcgggaagg ggaactgaga cctctcttcc aaatgttcac 360
catagctcat ga 372

```

```

<210> 26
<211> 492
<212> DNA
<213> Homo sapiens

```

```

<400> 26
atgggcccggc tgctgctggc tgcttttctg gcttttgtct cgggtgcccag ggcccaggcc 60
gtgtggttgg gaagactgga ccctgagcag cttcttgggc cctggtacgt gcttgcggtg 120
gcctcccggg aaaagggtt tgccatggag aaggacatga agaacgtcgt gggggtggtg 180
gtgaccctca ctccagaaaa caacctgcgg acgctgtcct ctcagcacgg gctgggaggg 240
tgtgaccaga gtgtcatgga cctgataaag cgaaactccg gatgggtgtt tgagaatccc 300
tcaataggcg tgctggagct ctgggtgctg gccaccaact tcagagacta tgccatcatc 360
ttcactcagc tggagttcgg ggacgagccc ttcaacaccg tggagctgta cagtctgacg 420
gagacagcca gccaggaggc catggggctc ttcaccaagt ggagcaggag cctgggcttc 480
ctgtcacagt ag 492

```

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<210> 27
<211> 906
<212> DNA
<213> Homo sapiens

```

```

<400> 27
atggcccggc atgggttacc gctgctgccc ctgctgtcgc tcctggtcgg cgcgtggctc 60
aagctaggaa atggacaggc tactagcatg gtccaactgc aggggtgggag attcctgatg 120
ggaacaaatt ctccagacag cagagatggt gaagggcctg tgcgggaggc gacagtgaaa 180
ccctttgcca tcgacatatt tcctgtcacc aacaaagatt tcagggattt tgtcaggag 240
aaaaagtatc ggacagaagc tgagatgttt ggatggagct ttgtctttga ggactttgtc 300
tctgatgagc tgagaaacaa agccaccag ccaatgaagt ctgtactctg gtggcttcca 360
gtggaaaagg cattttggag gcagcctgca ggtcctggct ctggcatccg agagagactg 420
gagcaccagc tgttacacgt gagctggaat gacgcccgtg cctactgtgc ttggcgggga 480
aaacgactgc ccacggagga agagtgggag tttgccgccc gagggggctt gaagggtcaa 540
gtttacccat gggggaactg gttccagcca aaccgcacca acctgtggca gggaaagtgc 600
cccaaggagg acaaaagtga ggatggcttc catggagtct ccccagtga tgctttcccc 660
gcccagaaca actacgggct ctatgacctc ctggggaacg tgtgggagtg gacagcatca 720
ccgtaccagg ctgctgagca ggacatgcgc gtcctccggg gggcatcctg gatcgacaca 780

```

```

getgatggct ctgccaatca ccgggcccgg gtcaccacca ggatgggcaa cactccagat 840
tcagcctcag acaacctcgg tttccgctgt gctgcagacg caggccggcc gccaggggag 900
ctgtaa 906

```

```

<210> 28
<211> 210
<212> DNA
<213> Homo sapiens

```

```

<400> 28
atgtgctggc tgcgggcatg gggccagatc ctcctgccag ttttcctctc cctctttctc 60
atccaattgc ttatcagctt ctcagagaat ggttttatcc acagccccag gaacaatcag 120
aaaccaagag atgggaatga agaggaatgt gctgtaaaga agagttgtca attgtgcaca 180
gaagataaga aatatatgat gaatagataa 210

```

```

<210> 29
<211> 210
<212> DNA
<213> Homo sapiens

```

```

<400> 29
atgggggttcc cggccgcggc gctgctctgc gcgctgtgct gcggcctcct ggccccggct 60
gcccgcgccc gctactccga ggagcgctgc agctggaggg gcaggccacg ccgcaccagg 120
acatcagccc ccgcgtggcc gccttccgct ttgagctgcg cgaggacggg cgccccgagc 180
tgcccccgca ggccccacgt ctcggcgtag 210

```

```

<210> 30
<211> 594
<212> DNA
<213> Homo sapiens

```

```

<400> 30
atgcgagggtg gcaaatgcaa catgctctcc agtttggggg gtctacttct ctgtggaagt 60
attacactag ccctgggaaa tgcacagaaa ttgccaaaag gtaaaaggcc aaacctcaaa 120
gtccacatca ataccacaag tgactccatc ctcttgaagt tcttgctgcc aagtccaaat 180
gtaaagcttg aaggctcttct cctgggatat ggcagcaatg tatcacaaa ccagtacttc 240
cctcttcccc ctgaaggga attcacagaa gctatagttg atgcagagcc gaaatatctg 300
atagttgtgc gacctgctcc acctccaagt caaaagaagt catgttcagg taaaactcgt 360
tctcgcaaac ctctgcagct ggtgggtggc actctgacac cgagctcggc cttcctgtcc 420
tgggggtttcc tcatcaaccc acaccatgac tggacattgc caagtcactg tcccaatgac 480
agattttata caattcgcta tcgagaaaag gataaagaaa agaagtggat ttttcaaata 540
tgtccagcca ctgaaacaat tgtggaaaac ctaaagccca acacaagttt atga 594

```

```

<210> 31
<211> 25
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> Description of Artificial Sequence: Primer

```

```

<400> 31
atggccaagt acctggccca gatca 25

```


<210> 32
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 32
tcacgtatgg ggcattctgcc ctttt 25

<210> 33
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 33
atgcacagat cagagccatt tctga 25

<210> 34
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 34
ttacagtagt ggcagtaaca cttgg 25

<210> 35
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 35
atgaagttcg tcccctgcct cctgc 25

<210> 36
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 36
tcaccctcgg aagaagctga tgaga 25

<210> 37
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 37
atgggacctg tgcggttggg aatat 25

<210> 38
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 38
tcaaagatct tctcggtcaa gtttg 25

<210> 39
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 39
atgttttgcc cactgaaact catcc 25

<210> 40
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 40
tcatgaaaat atccattcta ccttg 25

<210> 41
<211> 25
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 41

atggaactgc ttcaagtgc cattc

25

<210> 42

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 42

tcagttcttg gtttttcctt gtgca

25

<210> 43

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 43

atgcgacccc agggccccgc cgcct

25

<210> 44

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 44

ttattttggt agttcttcaa taatg

25

<210> 45

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 45

atgaagttac agtgtgtttc ccttt

25

<210> 46

<211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 46
 tcaggaggcc gatgggggcc agcac 25

<210> 47
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 47
 atggccagcc tggggctgct gctcc 25

<210> 48
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 48
 tcatgaggct cctgcagagg tctga 25

<210> 49
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 49
 atgaaactcc tgctgctggc tcttc 25

<210> 50
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 50
 tcatgagcta tggagaacat ttgga 25

<210> 51
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 51
 atgggcggcc tgctgctggc tgctt 25

<210> 52
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 52
 ctactgtgac aggaagccca ggctc 25

<210> 53
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 53
 atggcccggc atggggttacc gctgc 25

<210> 54
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 54
 ttacagctcc cctggcggcc ggcct 25

<210> 55
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 55
atgtgctggc tgcgggcatg gggcc 25

<210> 56
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 56
ttatctattc atcatatatt tctta 25

<210> 57
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 57
atgggggttcc cggccgcggc gctgc 25

<210> 58
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 58
ctacgccgag accgtgggccc tgcgg 25

<210> 59
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 59
atgcgagggtg gcaaattgcaa catgc 25

<210> 60
<211> 25
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 60

tcataaactt gtgttgggct ttagg

25

<210> 61

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 61

tcggaattcg ccatggccaa gtacctggcc cagatc

36

<210> 62

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 62

acgctcgagt tacttgtcat cgtcgtcctt gtagtccgta tggggcatct gccctttttc 60

<210> 63

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 63

tcggaattcg ccatggccag cctggggctg ctgctc

36

<210> 64

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 64

acgctcgagt tacttgtcat cgtcgtcctt gtagtctgag gctcctgcag aggtctgaga 60

<210> 65

<211> 36
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 65
 tcggaattca ccatgaaact cctgctgctg gctctt 36

<210> 66
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 66
 acgctcgagt tacttgtcat cgctgctcctt gtagtctgag ctatggtgaa catttggaag 60

<210> 67
 <211> 44
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 67
 tagacgaatt cccaccatgg gacctgtgctg gttgggaata ttgc 44

<210> 68
 <211> 57
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 68
 aggcaagtcg acaagatctt ctgggtcaag tttgggggtgg cttcctgtct tggcat 57

<210> 69
 <211> 51
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 69
 gtgtagaatt cccaccatgg ggggctgct gctggctgct tttctggctt t 51

<210> 70
<211> 44
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 70
ctgggcgtcg acctgtgaca ggaagcccag gctcctgctc cact 44

<210> 71
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic FLAG
tag

<400> 71
Asp Tyr Lys Asp Asp Asp Asp Lys
1 5